PEC UPDATE

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ISSUE HIGHLIGHTS

Have a safe and Happy Holiday Season!

CHCS Reports and Patient Order Entry: Information from TMSSC

Ad hoc Reports

Do you need a new report for the CHCS system? Don't recreate the wheel! The Information Management Support and Training team at the Tri-Service Medical Systems Support Center (TMSSC) has developed and deployed numerous Ad hoc reports in many of the CHCS functionalities, such as pharmacy, laboratory, radiology, etc. These Ad hoc reports can be accessed from the Medsite web page at: < http://www.medsite.brooks.af.mil >. From this main page, choose 'Services', then 'Information Management Support and Training (Ad Hocs)', and finally, 'Ad hoc Repository'. On this page you can view an index of existing reports for the functionality of interest. Additional information about each report is available at this site as well as a sample report. Instructions for downloading and implementation of the report at your facility are also included on the web page.

Patient Order Entry Buttons

The TMSSC also has ready-made button pallets and scripts to provide a graphical interface for most CHCS outpatient order entry functions. These 'buttons' exploit the point and click environment of Microsoft Windows and Smarterm 420.

This interface will make it easier for providers to run pre-set scripts to accomplish tasks like ordering medication, laboratory work, and radiology exams. These buttons reduce the repetitious key strokes associated with continually performing the same support/ancillary request functions throughout the day. Other features that can be included are quick access to a calculator, Microsoft Word, and Delrina Form Flow. These features enable providers to combine aspects of other popular programs to enhance their effectiveness and automate some of the tasks associated with patient care.

Version 2 of the Button Pallets and Scripts allows providers to easily update their personal lists of medications, laboratory tests, radiology exams, consults, order sets, etc., for easy access and ordering. Once a provider is

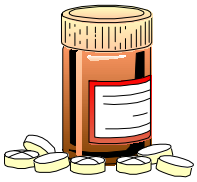
proficient with outpatient order entry, this feature can enhance their CHCS operations by quickly moving from task to task within CHCS order entry.

For additional information on the buttons and scripts for CHCS, contact MSgt Hansen at TMSSC at DSN 240-3358, or visit the TMSSC web page located at: < http://www.medsite.brooks.af.mil >.

MPAL/BCL Information

The PEC recommendations for the Master Pharmaceutical List (MPAL) and the Basic Core List (BCL) are currently awaiting final approval from Health Affairs. The PEC will provide additional information as it becomes available.

New Drug Interactions with Terfenadine



Terfenadine-containing products (Seldane® and Seldane-D® - Hoechst Marion Roussel) have long been contraindicated in patients taking concomitant macrolide antibiotics (erythromycin, clarithromycin, or troleandomycin) and imidazole antifungals (ketoconazole or itraconazole), and patients with significant hepatic dysfunction. Recently, the labeling for terfenadine products has been changed to reflect a new contraindication of simultaneously using terfenadine products with mibefradil dihydrochloride (Posicor® - Roche).

This new contraindication is based on a study which showed mibefradil altered terfenadine pharmacokinetic and pharmacodynamic parameters similar to that of other cytochrome P450 (CYP) 3A4 enzyme inhibitors, such as ketoconazole. This study reported significant elevation of terfenadine plasma levels and QTc prolongation.

Additionally, the new labeling provides warnings against using terfenadine products with other new drugs as listed below:

- HIV protease inhibitors such as indinavir (Crixivan® - Merck), ritonavir (Norvir™ - Abbott), saquinavir (Invirase™ - Roche), and nelfinavir (Viracept® - Agouron Pharmaceuticals).
- serotonin reuptake inhibitors such as fluvoxamine (Luvox® - Solvay), sertraline (Zoloft® - Pfizer), and nefazodone (Serzone® - Bristol-Myers Squibb).
- zileuton (Zyflo® - Abbot)
- cisapride (Propulsid® - Janssen)
- sparfloxacin (Zagam® - Rhone-Poulenc Rorer)

These newly listed drug interactions are the result of CYP 3A4 inhibition or additive QTc prolongation. In addition, terfenadine products should not be taken with grapefruit juice, due to drug/food interaction studies which suggest that co-administration of these products may lead to accumulation of unmetabolized parent terfenadine.

The new labeling also specifies that patients with significant renal impairment, particularly patients with a creatinine clearance below 40 mL/min, should not take more than one terfenadine tablet (60 mg) daily.

Although in January 1997 the Food and Drug Administration (FDA) proposed removing all terfenadine products from the marketplace, these products are still available and are widely used by healthcare providers and patients.

If a terfenadine-related adverse event occurs, healthcare providers are urged to contact FDA MEDWATCH at 1-800-FDA-1088 (phone) or 1-800-FDA-1078 (fax). Additional information on safety and labeling changes for terfenadine or other medications can be found on the FDA MEDWATCH home page at: < http://www.fda.gov/medwatch >.

References:

- Terfenadine (Seldane®) Package Insert. Hoechst Marion Roussel, Inc., 1997.
- Hoechst Marion Roussel. "Dear Health Professional Letter". September 1997. Available from: URL:

http://www.fda.gov/medwatch/safety/1997/ seldan2.htm
- Food and Drug Administration. FDA Talk Paper, Seldane Labeling Changes. September 24, 1997. Available from: URL: http://www.fda.gov/bbs/topics/ANSWERS/ANS00823.html

Correction: PEC Update 98-01
PEC World Wide Web Address

The PEC World Wide Web address has been changed from the one reported in PEC Update 98-01. The new address is:

http://www.pec.ha.osd.mil

The PEC Web site will continue to provide rapid access to PEC Updates and other information via the Internet. We apologize for any inconvenience this change in WWW addresses may have caused.

Medical Resources on the Web

The Internet and the World Wide Web (WWW) offer a wide array of resources to health professionals and patients. Listed below is a sampling of web sites that focus on the areas of cardiology and family practice.

American Heart Association
http://www.amhrt.org
Information on a range of topics for both healthcare professionals and consumers.

Healthfinder
http://www.healthfinder.gov/tours/heart.htm
Consumer information about heart disease and stroke.

The Heart
http://sln.fi.edu/biosci/TOC.biosci.html
Information for consumers on anatomy of cardio-pulmonary system and other general information.

ACLS Algorithms
http://www.med.ufl.edu/medinfo/baseline/aclsthms.html
Physician information on current algorithms for advance cardiac life support.

MedWeb: Cardiology
http://www.gen.emory.edu/MEDWEB/keyword/cardiology.html
Directory of many cardiology resources for consumers and healthcare professionals.

American Academy of Family Physicians
http://www.aafp.org
Information on a range of topics for both healthcare professionals and consumers.

HealthAnswers
http://www.healthanswers.com
Information on a range of topics for both healthcare professionals and consumers.

Health Reviews for Primary Care Providers
http://www.auhs.edu/library/resource/reviews/revw_ind.htm
Bibliography of important papers related to family medicine with links to abstracts and articles.

MedWeb: Family Medicine
http://www.gen.emory.edu/MEDWEB/keyword/family_medicine.html
Directory of many family medicine resources.

Web site information extracted from:
- Peters R, Sikorski R. The cardiology beat: an Internet education for patients and health professionals. *JAMA* 1997;278:451-2.
- Weinfeld JM. World Wide Web resources for family physicians. *Am Fam Physician* 1997;56:1501-4.

Grapefruit Juice and Drug Interactions

Grapefruit juice has been found to interact with numerous medications through inhibition of cytochrome P450 (CYP) 3A4, one enzyme responsible for the metabolism of some drugs. Grapefruit juice may also inhibit the enzymes CYP1A2 and CYP2A6. Isoenzyme inhibition decreases pre-systemic (first-pass) metabolism and results in increased plasma concentrations of some medications.

The specific substance in grapefruit juice that is responsible for the interactions has not been identified, but naringin and its metabolite naringenin may play a role. Naringin is a bioflavonoid in grapefruit juice that gives it the characteristic bitter taste.

Specific medications that have been found to interact with grapefruit juice are listed in the Table. The clinical significance of many of these interactions is uncertain at this time since most of the studies were short-term evaluations and did not include clinical parameters. However, the potential does exist for grapefruit juice to alter clinical effect and outcomes. Healthcare providers should be aware of this potential and counsel patients receiving medications that may interact with grapefruit juice.

Adapted from:

- Ogbru O. Drug interactions with grapefruit juice. *Facts and Comparisons DrugLink* 1997;I(8):59-61.
- Anonymous. Grapefruit juice interactions with drugs. *Med Lett Drugs Ther* 1995;37(955):73-4.
- Anonymous. Drug interactions with grapefruit juice. *Pharmacist's Letter* 1995;11(10):55.

Table. Pharmacokinetic and Clinical Effects of Grapefruit Juice on Drug Metabolism

Generic Name	Pharmacokinetic Effect	Clinical Effect
Amlodipine	AUC increased	No increase in blood pressure or heart rate noted
Caffeine	Increased half-life and AUC by 30%	Not clinically important
Cyclosporine	AUC increased	Clinical importance not fully evaluated; unpredictable effects on plasma cyclosporine concentrations; no effect on IV administered cyclosporine
Diltiazem	No effect	No effect
Estrogen	AUC increased	Clinical effect unknown
Felodipine	AUC increased	Increased incidence of adverse effects (flushing, headaches, hypotension); effects also noted with sustained-release formulation
Midazolam	AUC increased 50%	Increased psychomotor effects; no effect on IV administration of midazolam
Nifedipine	AUC increased	Clinical effect not evaluated
Nisoldipine	AUC increased	Slight increase in heart rate, minor effect on blood pressure
Nitrendipine	AUC increase	Slight increase in heart rate
Quinidine	No change in AUC; increase in time to reach peak concentration	No change in QTc interval
Terfenadine	Increased serum concentration	Prolongation of QTc interval
Theophylline	No change in AUC	No effect
Triazolam	AUC and peak concentration increased	Increased sedation, but no change in psychomotor performance
Warfarin	Decreased urinary excretion of 7-hydroxycoumarin	Clinical effect not evaluated

AUC = area under the concentration time curve

Adapted from:

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Anonymous. Grapefruit juice interactions with drugs. *Med Lett Drugs Ther* 1995;37(955):73-4.